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Federal Communications Commission
Office of the Secretary

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REDACTED – FOR PUBLIC INSPECTION

November 4, 2009

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: *NBP Public Notice #11, Comment Sought on Impact of Middle and Second Mile Access on Broadband Availability and Deployment*

In the Matter of A National Broadband Plan for Our Future, GN Docket No. 09-51; International Comparison and Consumer Survey Requirements in the Broadband Data Improvement Act, GN Docket No. 09-47; Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act, GN Docket No. 09-137

Dear Ms. Dortch:

Windstream Communications, Inc. ("Windstream") is filing the attached comments in response to *NBP Public Notice #11 – Comment Sought on Impact of Middle and Second Mile Access on Broadband Availability and Deployment*.¹ Windstream requests highly confidential treatment of its submission, pursuant to the *Protective Order* in GN Docket No 09-51 (A National Broadband Plan for Our Future) ("*Protective Order*").²

Consistent with instructions in the *Protective Order*, Windstream has marked the confidential version of its submission "**HIGHLY CONFIDENTIAL INFORMATION – SUBJECT TO PROTECTIVE ORDER IN GN DOCKET NO. 09-51 BEFORE THE FEDERAL COMMUNICATIONS COMMISSION.**" The redacted version is marked

¹ *Comment Sought on Impact of Middle and Second Mile Access on Broadband Availability and Deployment*, GN Dockets No. 09-47, 09-51, 09-137, Notice of Inquiry (rel. Oct. 8, 2009).

² *Protective Order*, GN Docket No. 09-51 (rel. Oct. 8, 2009).

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“REDACTED – FOR PUBLIC INSPECTION”. This cover letter contains no highly confidential information and is included with both the redacted and non-redacted versions.

Two copies of the non-redacted version are to be delivered to Elvis Stumbergs (Room 2-C125) or Simon Banyai (Room 4-C458) of the Federal Communication Commission’s Media Bureau. Windstream is filing the redacted version of its submission via ECFS. One copy of the non-redacted version and two copies of the redacted versions are to be submitted by messenger to the Office of the Secretary, along with a copy to be stamped and returned to Windstream by the messenger.

Windstream also seeks confidential treatment of its submission in GN Docket Nos. 09-47 and 09-137, pursuant to 47 CFR §§ 0.457 and 0.459. Windstream considers the information for which it seeks confidential treatment to be “competitively sensitive and information that is not routinely available for public inspection.”³ Windstream provides justification for this designation in Attachment A to this confidentiality request.

For GN Docket Nos. 09-47 and 09-137, Windstream has marked the confidential version of its submission **“CONFIDENTIAL – NOT FOR PUBLIC INSPECTION IN GN DOCKET NOS. 09-47 AND 09-137.”** The redacted version, as previously noted, is marked **“REDACTED – FOR PUBLIC INSPECTION”**. Also as noted above, Windstream, among other copies, is filing one copy of the non-redacted version with the Office of the Secretary via messenger and one copy of the redacted version via ECFS.

Please contact Steve Long (202-223-7666) or me if you have any questions.

Sincerely,

/s/

Eric Einhorn

Attachments

cc: Elvis Stumbergs -- Room 2-C125
or
Simon Banyai -- Room 4-C458

³ 47 C.F.R. § 0.457(d).

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ATTACHMENT A

Justification and Request for Highly Confidential Treatment

Windstream requests confidential treatment of its Comments on NBP Public Notice #11 in GN Docket No. 09-51, pursuant to the Protective Order, released October 8, 2009 (DA 09-2187), as well as confidential treatment of its Comments in GN Docket Nos. 09-47 and 09-137, pursuant to 47 CFR § 0.457(d) and § 0.459.

47 C.F.R. § 0.457(d)

Windstream considers information contained in its Comments to be confidential and proprietary as trade secrets; commercial or financial information; and/or information that is otherwise privileged and confidential. Disclosure of such information to the public would risk revealing company-sensitive proprietary, commercial information. In the normal course of Federal Communications Commission (“Commission”) practice, this material, therefore, should be considered “Records not routinely available for public inspection.”

47 C.F.R. § 0.459

Specific information included with this submission is also subject to protection under 47 CFR § 0.459, as demonstrated below.

Information for which confidential treatment is sought

Windstream requests that its submission containing confidential information be treated on a confidential basis under Exemption 4 of the Freedom of Information Act. The submission contains sensitive trade secrets; commercial or financial information; and/or information that is otherwise privileged and confidential. Windstream maintains this information as proprietary and/or confidential, and such information is not normally made available to the public. Release of the material could have a substantial negative competitive impact on Windstream. The confidential version of Windstream’s Comments is marked with the following legend: **“HIGHLY CONFIDENTIAL INFORMATION - SUBJECT TO PROTECTIVE ORDER IN GN DOCKET NO. 09-51 BEFORE THE FEDERAL COMMUNICATIONS COMMISSION. CONFIDENTIAL – NOT FOR PUBLIC INSPECTION IN GN DOCKET NOS. 09-47 AND 09-137.”**

Commission proceeding in which the information was submitted

The filing is being submitted in *In the Matters of A National Broadband Plan for Our Future*, GN Docket No. 09-51; *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 09-137; *International Comparison and Consumer Survey Requirement in the Broadband Data Improvement Act*, GN Docket No. 09-47.

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Degree to which the information in question is commercial or financial, or contains a trade secret or is privileged

The material designated as confidential contains sensitive trade secrets; commercial or financial information; and/or information that is otherwise privileged and confidential. Windstream maintains this information as proprietary, and withholds it from public inspection. This material is not normally made available to the public. Release of the material could have a substantial negative competitive impact on Windstream.

Degree to which the information concerns a service that is subject to competition; and manner in which disclosure of the information could result in substantial competitive harm

The type of trade secrets consists of broadband deployment costs information. This sensitive, proprietary internal Windstream information generally would not be subject to routine public inspection under the Commission's rules (47 C.F.R. § 0.457(d)), which demonstrates that the Commission already anticipates that the release of this kind of information likely would produce competitive harm. Windstream confirms that release of this confidential information would cause it competitive harm by allowing competitors to become aware of sensitive trade secrets and/or commercial or financial information regarding the operation of Windstream's business as it relates to the provision of broadband services.

Measures taken by Windstream to prevent unauthorized disclosure; and availability of the information to the public and extent of any previous disclosure of the information to third parties

Windstream has treated and treats the information disclosed in its Comments as confidential and has protected it from public disclosure to parties outside of the company.

Justification of the period during which Windstream asserts that the material should not be available for public disclosure

Windstream cannot determine at this time any date on which this information should not be considered confidential or would become stale for purposes of the current action, except that the material would be handled in conformity with general Windstream records retention policies, absent any continuing legal hold on the data.

Other information that Windstream believes may be useful in assessing whether its request for confidentiality should be granted

Under applicable Commission and court rulings, the material in question should be withheld from public disclosure. Exemption 4 of the Freedom of Information Act shields information that is (1) trade secrets or commercial or financial in nature; (2) obtained from a person outside government; and (3) privileged or confidential. The information in question satisfies this test.

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**Before the
Federal Communications Commission
Washington, D.C. 20554**

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| In the Matter of |) | |
| |) | |
| International Comparison and Consumer |) | |
| Survey Requirements in the Broadband |) | GN Docket No. 09-47 |
| Data Improvement Act |) | |
| |) | |
| A National Broadband Plan for Our Future |) | GN Docket No. 09-51 |
| |) | |
| Inquiry Concerning the Deployment of |) | |
| Advanced Telecommunications Capability |) | |
| To All Americans in a Reasonable and |) | |
| Timely Fashion, and Possible Steps to |) | GN Docket No. 09-137 |
| Accelerate Such Deployment Pursuant to |) | |
| Section 706 of the Telecommunications |) | |
| Act of 1996, as Amended by the Broadband |) | |
| Data Improvement Act |) | |

COMMENTS OF WINDSTREAM COMMUNICATIONS, INC. – NBP PUBLIC NOTICE #11

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Dated: November 4, 2009

Its Attorneys

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| Data Improvement Act |) | |

**COMMENTS OF WINDSTREAM COMMUNICATIONS, INC.
NBP PUBLIC NOTICE #11**

Windstream Communications, Inc., on behalf of itself and its affiliates (collectively “Windstream”), submits the following comments in response to the Federal Communications Commission (“Commission”) request for comment on the impact of middle and second mile access on broadband availability and deployment.¹ As the largest broadband provider focused on serving primarily rural areas, Windstream’s recommendations are informed by its significant

¹ *Comment Sought on Impact of Middle and Second Mile Access on Broadband Availability and Deployment*, GN Dockets No. 09-47, 09-51, 09-137, Notice of Inquiry (rel. Oct. 8, 2009) (“Public Notice”).

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experience and success in deploying broadband to rural consumers. Windstream operates in areas where deployment and operating costs are high and subscriber density is low,² but it nevertheless has aggressively deployed broadband to roughly 89 percent of its customer access lines, up from about 76 percent in 2006.³ Now more than one million of Windstream's three million access lines subscribe to broadband.

I. INTRODUCTION AND SUMMARY

Windstream serves as a model for policymakers seeking to understand how a broadband provider can efficiently deploy and operate high-speed facilities in rural, unserved, and underserved areas. As the largest broadband provider focused on serving primarily rural areas, Windstream serves mainly small communities and towns,⁴ which are spread across a service territory spanning 16 states and more than 145,000 square miles⁵ (see Appendix A). But despite the many challenges in deploying and operating high-speed networks in rural areas, Windstream has deployed broadband to virtually every exchange in its service area.⁶ Windstream now offers broadband access to 89 percent of its 3 million access lines, and it is seeking to expand these rural offerings with the purchase of D&E Communications and Lexcom Communications.

² With an average subscriber density of approximately 19 access lines per square mile, Windstream offers telecommunications services to approximately 3.0 million access lines across 16 states. Windstream's annual capital expenditures exceed \$300 million, or approximately 10 percent of its annual revenues.

³ Windstream's number of broadband-capable lines has increased significantly since September 2006, the first quarter after Windstream was formed as a result of its spin off from Alltel Corporation. Only 76 percent of Windstream's access lines were broadband-capable in September 2006.

⁴ Windstream operates 1,124 exchanges. Its average exchange is comprised of less than 2,700 access lines.

⁵ To put this number in context, 145,000 square miles is larger than the combined areas of the District of Columbia, Rhode Island, Delaware, Connecticut, New Jersey, New Hampshire, Vermont, Massachusetts, Hawaii, Maryland, West Virginia, and South Carolina.

⁶ Windstream has deployed broadband to all but 39 of its 1,124 exchanges.

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Windstream is committed to growing rural communications markets by bringing and improving high-speed networks to rural homes and businesses.

Windstream's impressive results reflect, in part, aggressive management of middle mile expenses. Windstream is a net purchaser of middle mile facilities used to support its retail broadband offerings, and it must purchase all of its dedicated Internet access ("DIA") ports from other providers. To compensate for its lack of end-to-end connectivity, Windstream seeks out best prices for transport, often pitting one middle mile provider against another. Windstream also optimizes network efficiencies by aggregating its traffic at the closest locations, taking advantage of the lower per bandwidth prices for larger "pipes." These efforts have allowed Windstream to manage middle mile expenses to such a degree that middle mile expenses rarely determine whether Windstream can deploy broadband to an unserved area.

Windstream's biggest deployment challenges, instead, reside in the second mile: More than 9 out of every 10 of Windstream's unserved customers are unserved solely due to the cost of deploying second mile facilities. In assessing second mile deployment conditions in its unserved areas, Windstream found that up-front costs to deploy second mile facilities are simply prohibitive – because the base of potential customers is too small for Windstream to earn back its investment at acceptable monthly rates, even assuming high and steady subscription rates. As recognized by *Bringing Broadband to Rural America: Report on a Rural Broadband Strategy*, "[r]elying on market forces alone will not bring robust and affordable broadband services to all parts of rural America."⁷

⁷ ACTING CHAIRMAN MICHAEL J. COPPS, FEDERAL COMMUNICATIONS COMMISSION, *BRINGING BROADBAND TO RURAL AMERICA: REPORT ON A RURAL BROADBAND STRATEGY* (May 22, 2009) ("RURAL BROADBAND STRATEGY REPORT") at ¶ 13.

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To expand broadband deployment, Windstream's experience indicates that federal policymakers should target funds to deployment of second mile facilities in unserved areas. This funding would address the greatest barrier to broadband deployment in unserved areas. Moreover, second mile deployment projects often can readily leverage existing deployments (by using existing network facilities, rights-of-way, and easements), which permits cost savings not available for altogether new builds. Supplemental funding for deploying or leasing middle mile facilities should be made available only if a broadband provider can convincingly establish that transport costs have hindered all broadband deployment to a specified unserved area.

II. FEDERAL POLICYMAKERS CAN SUBSTANTIALLY INCREASE BROADBAND AVAILABILITY BY FUNDING DEPLOYMENT OF SECOND MILE FACILITIES IN UNSERVED AREAS.

Windstream recently completed a comprehensive engineering analysis of costs to deploy broadband in each unserved census block in its service territory. This section describes data produced by Windstream's engineering assessment – including the finding that second mile deployment costs serve as the primary barrier to deploying broadband to more than 9 out of every 10 of Windstream's unserved households. This section also offers federal policy recommendations based on these recent findings.

A. BROADBAND BUILD-OUT COSTS ARE SUBSTANTIAL AND ESCALATE SIGNIFICANTLY AT THE TAIL END OF THE DEPLOYMENT CURVE.

Windstream's assessment of its unserved areas produced detailed deployment cost data that also are useful for any meaningful review of broadband funding needs. Specifically Windstream studied costs to deploy ADSL2+ technology at 6 Mbps downstream speeds throughout its service area. Windstream's experience for rural areas shows that the average

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Digital Subscriber Line Access Multiplexer (“DSLAM”) will support 24 to 480 customers, given customer locations and the need to place a DSLAM within 12,000 feet from the farthest customer to provide 6 Mbps service.⁸

Given these parameters, Windstream developed detailed engineering designs for how to most efficiently modify its network to deploy 6 Mbps downstream service to all of Windstream’s unserved households (i.e., approximately 364,000 households). Engineers found that the following facilities would be needed to support this new deployment:

- A remote DSLAM would need to be placed in each of more than 14,000 customer service areas (so that each customer household would be within 12,000 feet of a DSLAM).
- 3,492 individual second mile feeder routes would require fiber augmentation to shorten the loops (again, so that each customer household would be within 12,000 feet of fiber).⁹
- A total of 35,065 miles of new fiber would be required – i.e., each feeder route would need to be supplemented with, on average, 10 miles of new fiber.

Windstream used this assessment of the facilities needed to price out the cost of deploying 6 Mbps service to each of its unserved customer service areas.

Windstream found that the cost to deploy 6 Mbps service to all of its unserved households would be substantial. Specifically Windstream discovered that it would cost approximately \$1.5 billion to deploy 6 Mbps service to its approximately 364,000 unserved households. Average cost per unserved household, accordingly, would be roughly \$4,000.

Policymakers, however, should use such aggregate cost statistics with caution.

Windstream’s assessment found that deployment costs can vary substantially from one unserved

⁸ The cost of deploying service at different speed levels is partially a function of the loop length required, because DSL technology is distance sensitive. For example, broadband can be offered to households within 18,000 feet of fiber for 3 Mbps service, as compared to only 12,000 feet for 6 Mbps service.

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area to the next. Some unserved households can be connected to 6 Mbps service for \$1,000, while others require more than \$14,000 per house passed. The cost to deploy to the final 2 percent of Windstream's customer base is particularly steep. In fact, the cost of increasing Windstream's broadband addressability from 89 percent to 98 percent of households is roughly equal to the amount required to deploy broadband to the final 2 percent of Windstream's customer base. [REDACTED]

[REDACTED]¹⁰

A final fact worth highlighting is that not all of Windstream's broadband-capable areas currently have access to 6 Mbps service. Thus, additional capital expenditures would be required to offer 6 Mbps service to customers in those areas. Windstream estimates that the cost for this service upgrade would be approximately \$500 million – bringing the cost to deploy 6 Mbps service throughout Windstream's service territory to roughly \$2 billion.

B. SECOND MILE FACILITIES COMPRISE THE GREATEST PORTION OF BUILD-OUT COSTS IN UNSERVED AREAS.

Windstream's comprehensive engineering assessment, described above in Section II.A, found that middle mile build-out costs do not pose a substantial barrier to broadband deployment in its unserved areas. Based on Windstream's experience, rural consumers usually can subscribe

⁹ Given DSLAM requirements, this finding means that more than 4 DSLAMS, on average, would be placed on each of the augmented fiber feeder routes.

¹⁰ [REDACTED]

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to broadband if they live close to or in towns, where central offices are located. Windstream already has deployed broadband to virtually every town in its service area.¹¹

Broadband availability issues, instead, generally arise when consumers reside some lengthy distance from the closest central office. Reaching these consumers requires broadband providers to augment facilities along rural roads closer to individual residences. This sort of deployment initiative is particularly expensive on a per-household basis in remote areas where few households are situated along any individual cable route.¹²

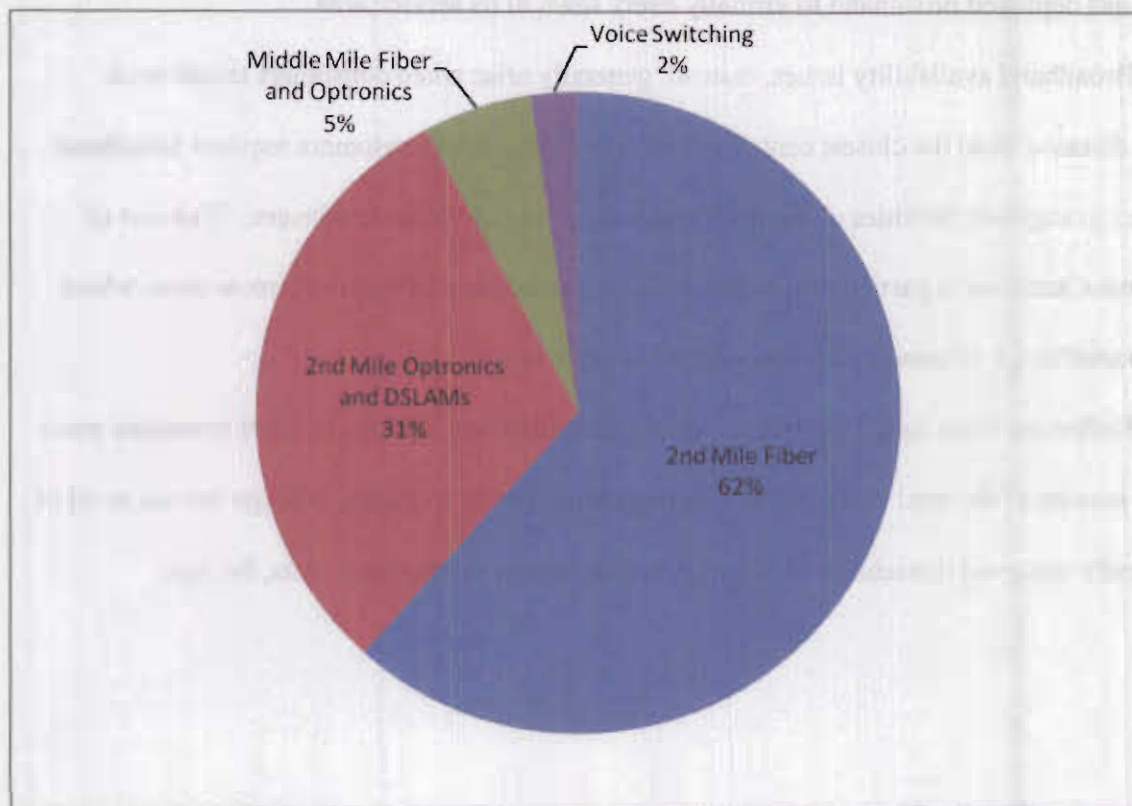
Reflecting these long loop issues, second mile fiber and equipment costs constitute more than 90 percent of the total costs that Windstream would incur to deploy 6 Mbps service to all of its currently unserved households.¹³ Chart A below depicts deployment costs, by type.

¹¹ See *supra* note 6 (noting that Windstream has deployed broadband to all but 39 of its 1,124 exchanges).

¹² An individual cable route in a rural area may extend from the outskirts of a town and into the farmlands and rural route portions of the community at large.

¹³ It bears mentioning that the type of second mile facilities needed can vary substantially from one project to the next. In particular, more expensive projects typically involve a longer distance between the central office and the DSLAM, so fiber comprises a larger portion of the second mile costs than is the case for less expensive projects.

CHART A: PROJECTED COSTS TO DEPLOY 6 MBPS SERVICE TO WINDSTREAM’S UNSERVED HOUSEHOLDS, BY TYPE OF COST¹⁴



With second mile costs far overshadowing middle mile costs, Windstream’s engineers estimate that sufficient federal funding for second mile projects alone would be sufficient to spur deployment of its 6 Mbps offering to more than 9 out of every 10 of Windstream’s unserved households. Or framed another way, sufficient second mile funding would enable Windstream to deploy broadband to more than 98 percent of its customer households. A discussion of the policy implications of this finding follow below.

¹⁴ DSLAMs accounted for in the “2nd Mile Optronics and DSLAMs” category include DSLAMs that only support broadband services, as well as DSLAMs that support both broadband and voice services. The “Voice Switching” category represents the cost of additional central office equipment required to accommodate voice traffic transmitted by new electronics in the field.

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**C. TO ENABLE GREATER BROADBAND ACCESS, FEDERAL POLICYMAKERS SHOULD
TARGET FUNDING TO SECOND MILE DEPLOYMENT IN UNSERVED AREAS.**

It is difficult, if not impossible, to make a rational case without government support for deploying affordable broadband service to consumers in remote areas that remain unserved. Windstream, like many broadband providers, has reached a point where it is no longer economically feasible to engage in substantial new broadband deployment initiatives. The average cost to deploy broadband to one of Windstream's unserved households is approximately \$4,000 – an amount that would be recovered only after 267 months (or 22 years), assuming 50 percent of the households addressed subscribe to a \$30.00/month broadband service plan.¹⁵ Such investment is not economic without support from other sources.¹⁶

Targeting funds directly to unserved areas can significantly improve the economic case for broadband deployment. Such funds can fundamentally alter economics by offsetting up-front costs and blunting risks faced by investors, permitting a broadband provider to deploy and earn sufficient returns at affordable rates collected from a smaller customer base. The same cannot be said for loans or loan guarantees. The most significant impediment to broadband deployment is not the cost (or absence) of credit -- it is the high cost of deployment, coupled with difficulties in recouping the investment from a small potential base of broadband customers.

Based on Windstream's engineering assessment, focusing new funding on deployment of second mile facilities in particular would be an especially effective way to reach consumers who lack access to core broadband applications. Windstream's data indicate that second mile

¹⁵ This calculation does not account for any return on investment. Of course, a reasonable return on investment is necessary for any investment to be made by a rational investor.

¹⁶ See RURAL BROADBAND STRATEGY REPORT at ¶ 13 (“[r]elying on market forces alone will not bring robust and affordable broadband services to all parts of rural America”).

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deployment costs pose the greatest barrier to broadband deployment in unserved areas.

Moreover, second mile deployment projects often can readily leverage existing deployments (by using existing network facilities, rights-of-way, and easements), which permits cost savings not available for altogether new builds. Thus, focusing funds on second mile deployment projects could allow the government to stretch limited funds – and reach more consumers who otherwise would be unable to take advantage of remote conferencing, online banking, and distance education opportunities.

With sufficient second mile funding, Windstream would be able to provide broadband services that are both durable and scalable. Ideally funding would be sufficient to support second mile fiber deployments capable of supporting ubiquitous 6 Mbps speeds. Fiber can extend to distances of 50 miles without repeaters and provides bandwidth capabilities that are several orders of magnitude better than copper. As customer bandwidth consumption continues to rise, second mile fiber will enable continued advancements in broadband services offered by both wireline and wireless service providers.¹⁷ Indeed, even much of the “middle mile” fiber needs of wireless broadband providers, as categorized by the diagram in the *Public Notice*, can be addressed with fiber deployments within a wireline provider’s second mile.¹⁸

Alternatively, the Commission should consider a network minimum of 3 Mbps capability if it determines that funding requirements for 6 Mbps are too great. A 3 Mbps goal could be

¹⁷In particular, 4G wireless services likely will require Ethernet connectivity, which drives the need for fiber.

¹⁸ The *Public Notice* characterizes all facilities connecting the Base Transceiver Station to the Mobile Switching Center/Fiber Aggregation as components of the “Middle Mile.” *Public Notice* at 2. Yet in Windstream’s experience, these facilities cross both the second mile and the middle mile of the wireline provider: Often the wireline provider’s network encompasses the connection from the Base Transceiver Station (cell site) to the central office as well as a portion of the middle mile transport to the Mobile Switching Center.

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achieved with less funding, because less fiber is needed.¹⁹ Moreover, 3 Mbps speeds would support standard-definition video used for applications that facilitate, among other services, online education and remote conferencing.

III. BEFORE CONCLUDING THAT MIDDLE MILE FUNDING IS NEEDED, COMMISSION OFFICIALS SHOULD REQUIRE PARTIES REQUESTING SUPPORT TO DEMONSTRATE THAT THE FUNDS WILL SIGNIFICANTLY INCREASE BROADBAND AVAILABILITY IN UNSERVED AREAS.

The Commission should be skeptical of claims that middle mile costs pose a substantial barrier to broadband deployment in many unserved areas. While middle mile issues may impede deployment in some unserved areas, Windstream's experience indicates that a broadband provider, by and large, can successfully manage most middle mile expenses by seeking out least cost alternatives for delivering broadband traffic to the Internet backbone and working to aggregate transport (taking advantage of the lower per bandwidth prices for larger "pipes"). This section describes how Windstream manages its middle mile expenses and reviews policy implications of Windstream's experience.

A. IN PROVIDING RETAIL BROADBAND SERVICE, WINDSTREAM'S EXPERIENCE AS A NET PURCHASER OF TRANSPORT INDICATES THAT MIDDLE MILE COSTS CAN BE MANAGED LARGELY BY SEEKING OUT BEST PRICED TRANSPORT SERVICES AND TAKING ADVANTAGE OF OPPORTUNITIES TO CONSOLIDATE TRAFFIC.

Windstream, a net purchaser of transport used to support its broadband service, is well versed in the challenges of securing transport for deploying broadband in a rural area. As evidenced by the map of its service area (see Attachment A), Windstream faces the same transport challenges as many other, smaller rural carriers. Approximately half of Windstream's

¹⁹ Longer copper loops can be provisioned to support 3 Mbps, as compared to 6 Mbps service.

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exchanges contain less than 1,000 access lines. These small exchanges are non-contiguous and often far away from major markets or other areas served by Windstream.

In spite of geographic challenges, Windstream has been able to effectively manage its middle mile costs for deploying broadband. It has deployed broadband to all but 39 of its 1,124 exchanges. Today less than one-half of one percent of all Windstream customers (i.e., less than 15,000 of Windstream's 3 million customers) is unserved due to middle mile costs.²⁰

Windstream's success in managing middle mile costs has been made possible by (1) conducting a thorough survey of various high-capacity providers' transport prices and (2) consolidating traffic from various sources onto high-capacity pipes. This section provides background for and description of Windstream's techniques for managing costs.

By way of background, traffic from virtually every one of Windstream's 1,124 exchanges follows a path of aggregation to one of four Internet Gateways, which are located in larger metropolitan areas where large carrier hotel complexes have evolved for the efficient consolidation and transfer of data traffic.²¹ Nearly all of Windstream's middle mile transport is on fiber facilities that will provide sufficient capacity for its broadband traffic into the foreseeable future.²² The traffic is aggregated in a manner similar to branches of a tree

²⁰ These customers fall within 39 exchanges, most of which are isolated from other Windstream exchanges and lack a customer base large enough to economically support incremental transport costs.

²¹ Windstream delivers most of its 16 states' broadband traffic to Internet Gateways in Dallas, Atlanta, Louisville, and Cleveland. Although Cleveland is the final Internet Gateway, Windstream has an arrangement with a vendor to meet in our Hudson, Ohio exchange, so Hudson effectively serves as a gateway city for Windstream. This arrangement has allowed Windstream to reduce costs and the vendor to receive larger volumes of traffic.

²² The significant capacity of fiber facilities used for Windstream's middle mile traffic is perhaps best understood when contrasted with capacity offered over traditional copper offerings. By way of example, Windstream has found that a single DS3 (45 Mbps) circuit can support up to 1,000 customers subscribing to Windstream's 6 Mbps or 12 Mbps offerings, depending on customers' usage patterns. Fiber permits multiple DS3s worth of traffic, and with Dense Wave Division Multi-plexing (DWDM), two fibers can be modified to effectively create a virtual 40-fiber system. The ability of fiber facilities to support greater capacity will only improve with advances in electronics.

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combining into increasingly larger aggregation points until the branches connect to the tree's trunk. A general guide to Windstream's traffic route is as follows:

- End office to first aggregation point: 2 DS3s (90 Mbps) typically purchased from a high-capacity broadband provider [REDACTED].
- First aggregation point to second: 2 diverse OC3s (300 Mbps) typically purchased from multiple vendors of choice [REDACTED].
- Second aggregation point to Internet Gateway: 4 OC12s (2.5 Gbps) typically purchased from multiple vendors of choice [REDACTED].

Tier 1 Internet backbone providers are offering increasingly lower prices for DIA ports.²³

The primary challenge in managing middle mile costs arises in the portion of the network connecting the end office to the first aggregation point, because on a per customer basis, this portion is the most expensive element of the path. Although it owns the interoffice middle mile transport facility up to the edge of its service boundary, Windstream generally only owns 15 percent of the transport facility connecting its non-contiguous exchanges to other Windstream exchanges and aggregation points where traffic is combined. Windstream purchases the remainder of middle mile transport from other high-capacity providers.

Windstream reduces middle mile costs, in part, by seeking out the best transport prices. To make sure it is paying a competitive price for transport, Windstream has dedicated staff to review location-specific prices of high-capacity providers and perform least cost routing analysis. Windstream looks at all possible transport vendors, receives quotes, and then negotiates the most efficient network and prices. High-capacity providers surveyed include all Regional Bell Operating Companies ("RBOCs") (including their interexchange carrier affiliates),

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combining into increasingly larger aggregation points until the branches connect to the tree's trunk. A general guide to Windstream's traffic route is as follows:

- End office to first aggregation point: 2 DS3s (90 Mbps) typically purchased from a high-capacity broadband provider [REDACTED].
- First aggregation point to second: 2 diverse OC3s (300 Mbps) typically purchased from multiple vendors of choice [REDACTED].
- Second aggregation point to Internet Gateway: 4 OC12s (2.5 Gbps) typically purchased from multiple vendors of choice [REDACTED].

Tier 1 Internet backbone providers are offering increasingly lower prices for DIA ports.²³

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interexchange carriers. In all, aggregation facilitated by the Alltel/Valor merger made broadband deployment feasible not only for Burns Flat, but also 15 other Oklahoma exchanges, where before transport costs served as a formidable barrier to broadband deployment.

To facilitate these sorts of efficiencies, the Commission should minimize delays or conditions placed on rural industry consolidation. While not all traffic aggregation initiatives are the product of a merger, the example of Burns Flat, Oklahoma (cited in Section III.A above), demonstrates that rural consumers benefit when broadband providers are able to develop economies of scale for efficient broadband traffic management. Industry consolidation spurs build out in unserved areas by opening up new opportunities for broadband providers to aggregate traffic and thereby reduce transport costs.

B. ANY SUBSIDIES FOR MIDDLE MILE COSTS SHOULD BE CONDITIONED ON A CONVINCING SHOWING THAT TRANSPORT HAS PREVENTED ALL BROADBAND DEPLOYMENT IN A SPECIFIED UNSERVED AREA.

The Commission should be skeptical of assertions that middle mile connection prices are a substantial impediment to further broadband deployment. Those promoting further regulation of network connection pricing often have invested the least amount of capital in plant equipment, fiber, electronics, and routers necessary to support high-speed networks. These entities' inefficiencies and failure to invest should not be rewarded with inter-industry cross-subsidies.

To achieve ubiquitous broadband access, Windstream, however, recognizes that it may be necessary for the federal government to subsidize middle mile expenses to enable deployment in particularly high-cost, unserved areas. In the limited instances where such support may be warranted, Windstream has found that exchanges typically have the following reasons for lack of

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deployment: (i) the exchange is an island exchange²⁴ or only part of a small, isolated grouping of exchanges; (ii) less than 1,000 access lines fall within the exchange; and (iii) the closest point of traffic aggregation is more than 50 miles away from the central office. The combination of a small customer base and long transport distances can make it impossible to build an economic case for broadband deployment. To account for these conditions, policymakers should consider targeting federal funds where a broadband provider can demonstrate with specificity that transport has prevented all broadband deployment in the unserved area.

IV. FOCUSING FUNDS ON BROADBAND DEPLOYMENT TO ANCHOR INSTITUTIONS WILL HAVE A NEGLIGIBLE IMPACT ON BROADBAND AVAILABILITY IN UNSERVED AREAS.

The Commission should be critical of unfounded claims that broadband funding for anchor institutions will result in significant improvements to availability in otherwise unserved areas. Anchor institutions offering services for health care delivery, education, or children typically are located within or close to town centers, and as noted in Section II.B, such areas almost always already have access to broadband.²⁵ In contrast, unserved households typically fall far outside of town, in areas served by long loops. Making broadband available to these households requires broadband providers to augment facilities along rural roads closer to individual residences – a capital expenditure that would not be materially addressed by deployment funds focused on anchor institutions located in town.²⁶

²⁴ An island exchange is an exchange that is not contiguous to any other exchanges under common ownership.

²⁵ See also *supra* note 6 (noting that Windstream has deployed broadband to all but 39 of its 1,124 exchanges).

²⁶ See also Comments of CenturyLink on NBP Public Notice #12 (Connecting Anchor Institutions), GN Docket Nos. 09-47, 09-51, 09-137, at 2-3 (filed Oct. 27, 2009) (explaining why “providing fiber to . . . anchor institutions is

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To significantly increase broadband availability in unserved areas, federal policymakers should allocate funds directly to second mile facilities. By funding deployment of these facilities, the Commission will benefit rural residents and anchor institutions alike by significantly expanding the pool of broadband users who can contribute to and benefit from anchor institutions' online offerings. Data in Section II.B establishes that the cost of building out second mile facilities currently poses the greatest barrier to deployment in unserved areas.

V. CONCLUSION

Federal policymakers can significantly increase broadband availability with direct funding to help offset second mile deployment costs. For Windstream, more than 9 out of every 10 unserved customers are unserved due to the cost of deploying second mile facilities. Funds devoted to second mile facilities could substantially alter the economics for deployment to these unserved consumers, by offsetting up-front costs and blunting risks inherent to deploying networks within sparsely populated areas.

The Commission should scrutinize claims that middle mile costs, as compared to second mile costs, pose an equal or greater barrier to broadband deployment. While insurmountable middle mile issues may arise in discrete circumstances, Windstream has found that a broadband provider can effectively manage the vast majority of middle mile expenses by seeking out competing price quotes from high-capacity providers and

unlikely to improve the build-out economics substantially in currently unserved or under-served areas"); Comments-NBP Public Notice #12 of Qwest Communications International Inc., GN Docket Nos. 09-47, 09-51, 09-137, at 4-5 (filed Oct. 28, 2009) (describing reasons for why "targeting significant government resources to anchor institution fiber build-out would not materially improve the economics of the last-mile build-out needed to address the un- and underserved problems facing the Commission").

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efficiently aggregating transport on larger pipes. Any funds directed to middle mile facilities should be limited to instances where a broadband provider can prove that transport costs have prevented all broadband deployment to a specified unserved area.

Respectfully submitted,

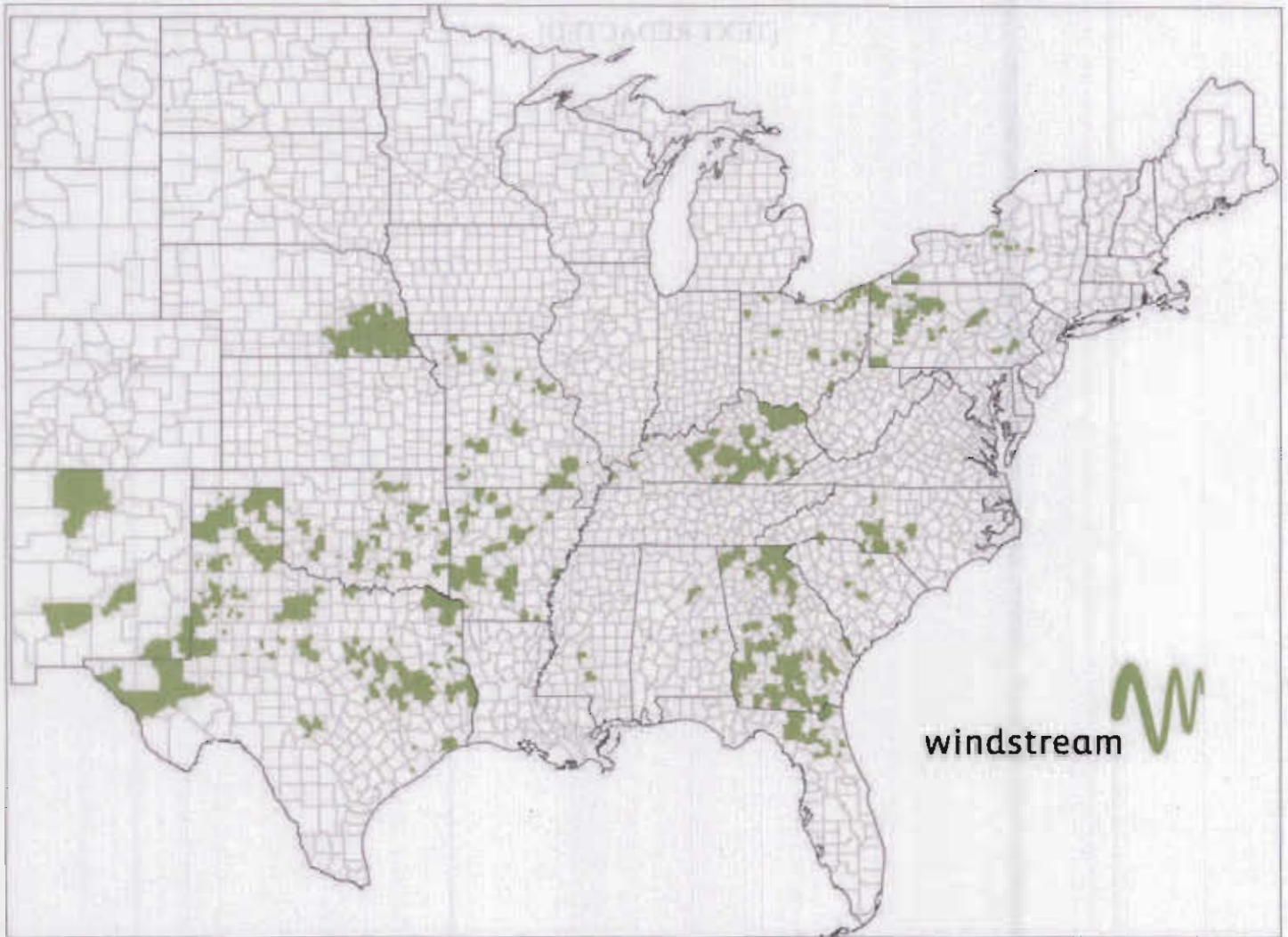
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Its Attorneys

APPENDIX A



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APPENDIX B

[TEXT REDACTED]